No. 9600087

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Agripro Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR [illegible]RTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE [illegible]URPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT [illegible]Y THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'W88-039'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this twenty-ninth day of March in the year of our Lord one thousand nine hundred and ninety-six.*

Attest:

Marsha A. Stanton
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*

~~Agripro Seeds, Inc.~~ HybriTech US, a Monsanto Company CGM 01 Jun 1998

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

W88-039

3. VARIETY NAME

W88-039

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

6700 Antioch
P.O. Box 2962
Shawnee Mission, Kansas 66201-1362

5. TELEPHONE *(include area code)*

913-384-4940

6. FAX *(include area code)*

913-384-0208

FOR OFFICIAL USE ONLY

PVPO NUMBER: 9600087

FILING DATE: Dec 14, 1995

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00
DATE: Dec 14, 1995
CERTIFICATION FEE: $ 300.00
DATE: 2-21-96

7. GENUS AND SPECIES NAME

Triticum aestivum

8. FAMILY NAME *(Botanical)*

Gramineae

9. CROP KIND NAME *(Common name)*

Hard Red Winter Wheat

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

Delaware

12. DATE OF INCORPORATION

June 1994

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

~~Robert Bruns~~
~~806 N. Second Street~~
~~P.O. Box 30~~
~~Berthoud, Colorado 80513~~

OR

Christine Bruns
806 N. Second Street
Berthoud, CO 80513

Mark J. Messmer
HybriTech US
5912 North Meridian
Wichita KS 67204

CGM 01 Jun 1998

14. TELEPHONE *(include area code)*

~~970-532-3721~~
316 755 7007

15. FAX *(include area code)*

~~970-532-2035~~
316 755 0072

email: Mark.J.Messmer@Monsanto.com

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)?*

☐ YES *(If "yes," answer items 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☒ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☒ YES *(If "yes," give names of countries and dates)* ☐ NO

Hybrid made with W88-039 commercially sold in August 1995 in the USA

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
Robert Bruns			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Robert Bruns			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
General Manager-Wheat Research and Product Development			11-20-95

SD-470 (04-96) *(Previous editions are to be destroyed)* *(See reverse for instructions and information collection burden statement)*

EXHIBIT A.

ORIGIN AND BREEDING HISTORY OF W88-039

W88-039 was an F3 derived single plant selection from the cross Wheaton/ 3/MV F2 935-60 (Selection from a breeding population from Martonvassar, Hungary - pedigree unknown). The cross was made in 1983 and the plant selection was made in Berthoud, Colorado in 1986. The resulting F4 plant row was tested in preliminary yield trials in 1988 and 1989. W88-039 was head-rowed in 1990. Twelve head-rows were selected on the basis of phenotypic uniformity and planted as progeny plots in 1991. Four F7 progeny plots were selected and bulked on the basis of foliar disease resistance. W88-039 has been tested both as a pure-line and as a parent in hybrid combination from 1990 through 1995. These replicated trials represent a broad geographic area in the Hard Winter Wheat region.

In 1990, 48 head-rows were grown in Berthoud, Colorado. Twelve of these rows were individually harvested and grown as progeny plots in 1991. Four of these progeny plots were selected to plant an initial seed increase in 1993 due to their superior leaf rust resistance. This initial increase produced 1,300 pounds of breeder seed. In 1994, an additional 26,680 pounds of breeder seed was produced in Kress, Texas.

W88-039 has been uniform and stable since 1993. Less than 0.5% of the plants were rogued from the initial seed increase in 1993. Approximately 84% of the rogued variant plants were taller height (3 to 10 cm's), 5% were green plant color at boot stage, and 1% were awnless. Up to .8% total variant plants may be encountered in subsequent generations.

EXHIBIT B.

STATEMENT OF DISTINCTNESS

W88-039 is most similar to the hard red winter wheat 'Thunderbird'. However it can be distinguished by the following morphological characteristics:

W88-039 has a blue-green plant color (Royal Horticultural Society color fan #124-A) at boot stage (Berthoud, Colorado 1993, 1994 and 1995). Thunderbird has a green plant color (Royal Horticultural Society color fan #137-A) at boot stage (Berthoud, Colorado 1993, 1994 and 1995).

W88-039 has an apiculate shoulder shape in the glume (Berthoud, Colorado 1993, 1994 and 1995). Thunderbird has an oblique shoulder shape (Berthoud, Colorado 1993, 1994 and 1995).

W88-039 has an elliptical seed shape (Berthoud, Colorado 1993, 1994 and 1995). Thunderbird has an ovate seed shape (Berthoud, Colorado 1993, 1994 and 1995).

U.S DEPARTMENT OFAGRICULTURE
AGRICULTURAL MARKETING SERVICE
COMMODITIES SCIENTIFIC SUPPORT DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(*Wheat*)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* Spp.)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Agripro Seeds, Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and Zip Code*)
6700 Antioch
P.O. Box 2962
Shawnee Mission, Kansas 66201-1362

FOR OFFICIAL USE ONLY

PVPO NUMBER 9600087

VARIETY NAME OR TEMPORARY DESIGNATION
W88-039

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in the first box (e.g. [ ][ ][ ] or [ ][ ]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = CLUB 4 = OTHER (SPECIFY) _____

2. VERNALIZATION:

[2] 1 = SPRING 2 = WINTER 3 = OTHER (SPECIFY) _____

3. COLEOPTILE ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

4. JUVENILE PLANT GROWTH:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

5. PLANT COLOR (boot stage):

[3] 1 = YELLOW-GREEN 2 = GREEN 3 = BLUE-GREEN

6. FLAG LEAF (boot stage):

[1] 1 = ERECT 2 = RECURVED

[2] 1 = NOT TWISTED 2 = TWISTED

7. EAR EMERGENCE:

[0][2] NUMBER OF DAYS EARLIER THAN Thunderbird *

[ ][ ] NUMBER OF DAYS LATER THAN _____ *

8. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

9. PLANT HEIGHT (from soil to top of head, excluding awns)

[8][4] eqal in height to Victory
cm. [redacted] _____ *

[ ][ ] cm. SHORTER THAN _____ *

* Relative to a PVP-approved commercial variety grown in the same trial.

10. STEM:

A. ANTHOCYANIN

[1]

1 = ABSENT 2 = PRESENT

B. WAXY BLOOM

[2]

1 = ABSENT 2 = PRESENT

C. HAIRINESS (last internode of rachis)

[2]

1 = ABSENT 2 = PRESENT

D. INTERNODE (specify number) _____

[1]

1 = HOLLOW 2 = SEMI-SOLID 3 = SOLID

E. PEDUNCLE

[1]

1 = ERECT 2 = RECURVED

[3][3] cm. PEDUNCLE LENGTH (as measured from upper node to last rachis internode)

11. HEAD (at Maturity):

A. DENSITY

[2]

1 = LAX 2 = MIDDENSE 3 = DENSE

B. SHAPE

[1]

1 = TAPERING 2= STRAP 3 = CLAVATE 4 = OTHER (specify) _____

C. CURVATURE

[1]

1 = ERECT 2 = INCLINED 3 = RECURVED

D. AWNEDNESS

[4]

1 = AWNLESS 2 = APICALLY AWNLETTED 3 = AWNLETTED 4 = AWNED

12. GLUMES (at Maturity):

A. COLOR

[1]

1 = WHITE 2 = TAN 3 = OTHER (specify) _____

B. SHOULDER

[6]

1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

C. BEAK

[3]

1 = OBTUSE 2 = ACUTE 3 =ACUMINATE

D. LENGTH

[2]

1 = SHORT (ca. 7mm) 2 = MEDIUM (ca. 8mm) 3 = LONG (ca. 9mm)

E. WIDTH

[1]

1 = NARROW (ca. 3mm) 2 = MEDIUM (ca. 3.5mm) 3 = WIDE (ca. 4mm)

13. SEED:

A. SHAPE

[3] 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

B. CHEEK

[1] 1 = ROUNDED 2 = ANGULAR

C. BRUSH

[2] 1 = SHORT 2 = MEDIUM 3 = LONG

[1] 1 = NOT COLLARED 2 = COLLARED

D. CREASE

[1] 1 = WIDTH 60% OR LESS OF KERNEL
2 = WIDTH 80% OR LESS OF KERNEL
3 = WIDTH NEARLY AS WIDE AS KERNEL

[1] 1 = DEPTH 20% OR LESS OF KERNEL
2 = DEPTH 35% OR LESS OF KERNEL
3 = DEPTH 50% OR LESS OF KERNEL

E. COLOR

[3] 1 = WHITE 2 = AMBER 3 = RED 4 = OTHER (specify) _____

F. TEXTURE

[1] 1 = HARD 2 = SOFT

G. PHENOL REACTION (see instructions)

[---] 1 = IVORY 2 = FAWN 3 = LIGHT BROWN
4 = DARK BROWN 5 = BLACK

14. DISEASE: (0 = NOT TESTED; 1 = SUSCEPTIBLE; 2 = RESISTANT) 3=moderately resistant 4=moderately susceptible

[3] STEM RUST (Res. genes) _____

[0] STRIPE RUST (Res. genes) _____

[1] MILDEW (Res. genes) _____

[0] *Septoria nodorum* (Res. genes) _____

[0] BYDV (Res. genes) _____

[4] SBMV (Res. genes) _____

[ ] OTHER _____

[3] LEAF RUST (Res. genes) _____

[0] LOOSE SMUT (Res. genes) _____

[0] BUNT (Res. genes) _____

[0] *Septoria tritici* (Res. genes) _____

[4] WSMV (Res. genes) _____

[4] SSMV (Res. genes) _____

15. INSECT: (0 = NOT TESTED; 1 = SUSCEPTIBLE; 2 = RESISTANT) 3=moderately resistant 4=moderately susceptible

[1] HESSIAN FLY (Res. genes) _____

[0] STEM SAWFLY (Res. genes) _____

[0] CEREAL LEAF BEETLE (Res. genes) _____

[0] APHIDS (Res. genes) _____

[0] GREENBUG (Res. genes) _____

[0] RUSSIAN APHID (Res. genes) _____

[ ] OTHER (specify) _____

EXHIBIT D.

ADDITIONAL DESCRIPTION OF W88-039

W88-039 is a hard red winter wheat bred and developed by Agripro Seeds, Inc. for use as a parent in hybrid combination. See Exhibit F. for agronomic and disease characterization and documentation.

Juvenile growth habit is semi-erect. Plant color at boot stage is blue-green. Flag leaf at boot stage is erect and twisted. Auricle anthocyanin and auricle hairs are present. Head shape is tapering, middense, and awned. Plant color at maturity is white. Glumes are glabrous, medium in length and narrow in width with long acuminate beaks. Shoulder shape on the glume is apiculate. Seed shape is elliptical with rounded cheeks and medium brush length. Seed crease is shallow in depth and narrow in width.

EXHIBIT F.

QUALITY AND AGRONOMIC DATA

AGRIPRO WHEAT
HARD RED WINTER WHEAT
W88-039

YEAR: 1995

YEAR-LOC	FLOUR/WHEAT QUALITY											BAKING QUALITY										
								MIXOGRAM										CRUMB				
	WHT PROT	FLR PROT		NHRD	FLR YLD		ASH	PK TIME	PK HT	TOL		ABS		MIX TIME		LOAF VOL		GR	TX	COL	OVER ALL	CMT
	14%mb	14%mb	R		%	R		min	N.U.	mm	R	%	R	min	R	cc	R	R	R	R	R	
										W88-039												
88-SK	14.4	13.2	6	82	59.4	5	.000	4.50	5.0	1023	6	62.0	4	4.50	3	1030	5	4	5	5	59	R,a
89-GI	13.7	12.0	3	67	67.8	3	.000	4.00	5.0	1462	4	62.0	2	4.00	1	1130	3	5	3	2	39	
89-NO	12.8	11.4	3	90	65.2	6	.000	5.00	4.5	1436	4	61.0	3	5.00	5	1080	4	5	3	2	48	
AVERAGE	**13.6**	**12.2**	**4.0**	**80**	**64.1**	**4.7**	**.000**	**4.50**	**4.8**	**1307**	**4.7**	**61.7**	**3.0**	**4.50**	**3.0**	**1080**	**4.0**	**4.7**	**3.7**	**3.0**	**48**	
										HAWK												
88-SK	14.5	13.1	6	86	60.8	4	.000	4.50	4.7	1815	1	61.0	5	4.50	3	1110	3	3	2	3	39	R
89-GI	12.5	11.4	5	73	69.8	1	.000	4.00	5.3	1555	3	61.0	3	4.00	1	940	6	4	3	2	41	
89-NO	12.1	10.4	6	74	67.1	4	.000	4.50	4.5	1677	2	59.0	5	4.50	3	980	5	3	2	2	43	
AVERAGE	**13.0**	**11.6**	**5.7**	**78**	**65.9**	**3.0**	**.000**	**4.33**	**4.8**	**1682**	**2.0**	**60.3**	**4.3**	**4.33**	**2.3**	**1010**	**4.7**	**3.3**	**2.3**	**2.3**	**41**	

RATINGS: 1-2=EXCELLENT 3-4=GOOD 5=ACCEPTABLE 6-7=QUESTIONABLE 8-9=UNACCEPTABLE

10

Agripro Seeds, Inc. Hard Winter Wheat Data Summary

Var./Line	Heading	Maturity	Coleoptile	Height	Straw Strength	Leaf Rust Severity	Leaf Rust Reaction	Stem Rust Severity	Stem Rust Reaction	Powdery Mildew	Hessian fly	WSMV	SBMV	SSMV
W88-039	7	6	5	4	4	3	4	2	3	5	9	5	4	4
Thunderbird	5	5	2	5	3	3	7	5	4	7	6	5	3	6

Data generated in 1988:
Berthoud, CO - Yield, Test Wt. Height, Lodging Severity (straw strength), Maturity, Pollination, Hessian fly (grnhse. screening) Powdery Mildew, Leaf Rust, Stem Rust (grnhse. screening)
Salina, Ks - Yield, Test Wt.
Everest, KS - Soilborne Mosaic

Data generated in 1989:
Berthoud, CO - Yield, Test Wt., Height, Heading Date, Stem Rust (grnhse. & field), Leaf Rust (grnhse)
Nardin, OK - Yield,m Test Wt., Height, Maturity, Lodging Severity (straw strength), Leaf Rust (field)
Garden City, KS - Yield, Test Wt.
Geneva, NE - Yield, Test Wt., Height

Data generated in 1990:
Berthoud, CO - Height, Heading, Anthesis, Coleoptile (grnhse. screening)
Dumas, TX - Growth habit, Heading
Salina, KS - Leaf Rust
Grant, NE - Soilborne
Hays, KS - WSMV (Visual screening - Dr.T.J Martin).

Data generated in 1991:
Berthoud, CO - Heading, Pollination, Leaf Rust
Dumas, TX - Heading
Wichita, KS - Heading, Leaf Rust
Everest, KS - Soilborne, Spindle Streak
Salina, KS - Leaf Rust
Imperial, NE - Leaf Rust
Hays, KS - WSMV (Visual screening - Dr.T.J Martin).

Data generated in 1992:
Berthoud, CO - Yield, Test Wt., Heading, Height, Pollination, Greenhouse Screenig for: Coleoptile, Tan Spot, Powdery Mildew, and Hessian fly
Salina KS - Yield, Test Wt.,
Rome, KS - Spindle Streak
Hays, KS - WSMV (Visual screening - Dr.T.J Martin).

Data generated in 1993:
Berthoud, CO - Yield, Test Wt., Heading, Pollination, Maturity, Height
Garden City, KS - Yield, Test Wt.
Geneva, NE - Soilborne
Broken Bow, NE - Winterhardiness
Dumas, TX - Yield, Test Wt.

Data generated in 1994:
Berthoud, CO - Yield, Test Wt., Heading, Pollination, Maturity, Height, Leaf Rust (grenhse screening)
Garden City, KS - Yield, Test Wt., Leaf Rust
Geneva, NE - Soilborne
Broken Bow, NE - Winterhardiness
Dumas, TX - Yield, Test Wt.
Hereford, TX - Heading
Hays, KS - WSMV (Visual screening).

Data generated in 1995:
Berthoud, CO - Yield, Test Wt., Heading, Leaf Rust, Lodge Severity, Powdery mildew
Goodland, KS - Yield, Test Wt., Lodge Severity
Beloit, KS - Yield, Test Wt., Tan Spot
Salina, KS - Heading, Septoria
Everest, KS - Spindle Streak
Saint John, KS - Spindle Streak
Dumas, TX - Test Wt.
Wichita, KS - Leaf Rust, Tan Spot

Note: Rankings in this table represent the average for a given trait on a 1-9 scale where 1 and 9 represent the extremes for the repective traits.

Trait	1	9
Heading	early	late
Maturity	early	late
Coleoptile	long	short
Height	short	tall
Straw Strength	strong	weak
All disease & insect ratings	resistant	susceptible

EXHIBIT E.

STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

The variety for which Plant Variety Protection is hereby sought was developed by Dr. John Moffatt, an employee of Agripro Seeds, Inc. By agreement between employees and Agripro Seeds, Inc., all rights to any invention, discovery, or development made by the employee while employed by Agripro Seeds, Inc., were assigned to Agripro Seeds, Inc., with no rights of any kind pertaining to W88-039 being retained by the employees.